

Optical Obstacle Avoidance System for Lunar and Mars Landing, Phase I

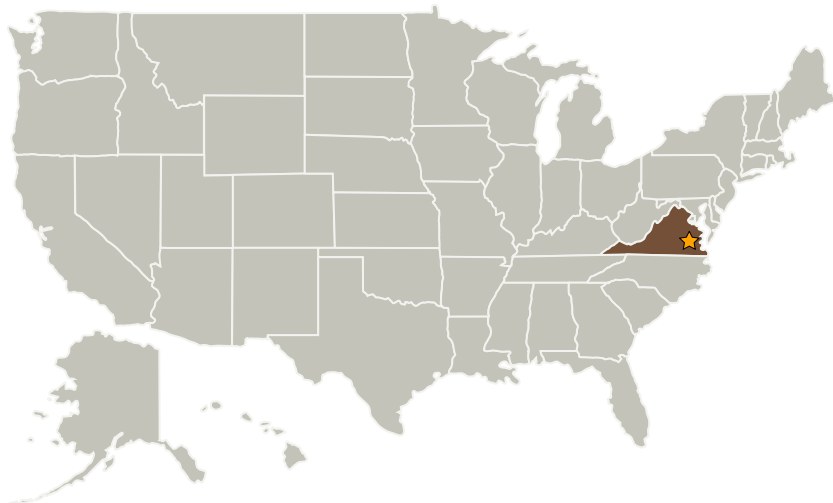
Completed Technology Project (2007 - 2008)



Project Introduction

The systems developed at fibertek for Obstacle-Avoidance has so far all been operated at 1560nm. Such an operation is required due to the required eye-safety constraint. This wavelength range has so far shown reduced efficiency to a 30% optical-optical efficiency in the last stage of optical amplification in the fiber based transmitter we have developed. For space applications, we believe a highly efficient transmitter will be required with associated optical receiver technology. We propose here to develop a highly efficient, very versatile transmitter based on Ytterbium-doped fiber amplifiers. Associated with this transmitter we will demonstrate a coherent detection system allowing for both range and velocity measurements during space vehicle landing. The technology required for the transmitter/receiver and scanning is at TRL 5. A successful Phase II STTR should allow for field testing bringing this TRL to 6.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center (LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Metis Technology Solutions, Inc.	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Albuquerque, New Mexico

Primary U.S. Work Locations

Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

William Torruellas

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers